APPENDIX TO MINILLAS GOVERNMENT BUILDING (NORTH TOWER) ASBESTOS CLEANUP WORK PLAN

SITE-SPECIFIC HEALTH AND SAFETY PLAN

(Revision 3.0)

EMERGENCY INFORMATION
EMERGENCY CONTACTS AND ROUTE TO HOSPITAL

Emergency Contact Telephone No.

Fire Department – 911 and (787) 343-2330

Police Department – 911 and (787) 343-2020

State Emergency Office Management – 911 and 787-724-0124

Municipal Emergency Office Management – 911 and 787-480-4000

Hospitals:

San Juan Medical Plaza (Health Centre) – (787) 787-977-7575

Ashford Center - (787) 721-2160

Ambulance Dispatch System (787) 728-2610

U.S. Environmental Protection Agency

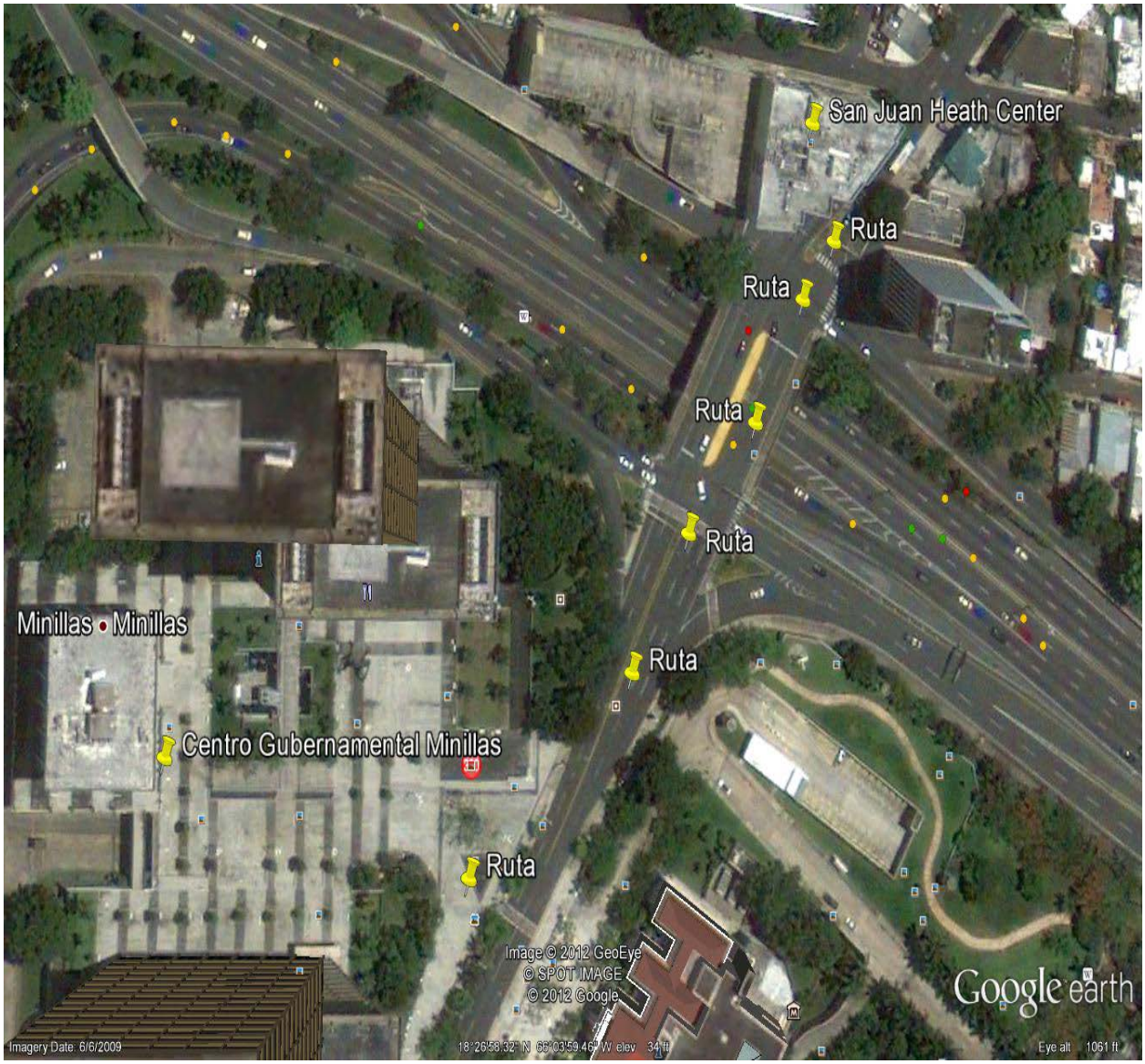
Angel Rodríguez – On Site Coordinator – (787) 671-8093

EPA Onsite oversight contractor – (To be provided)

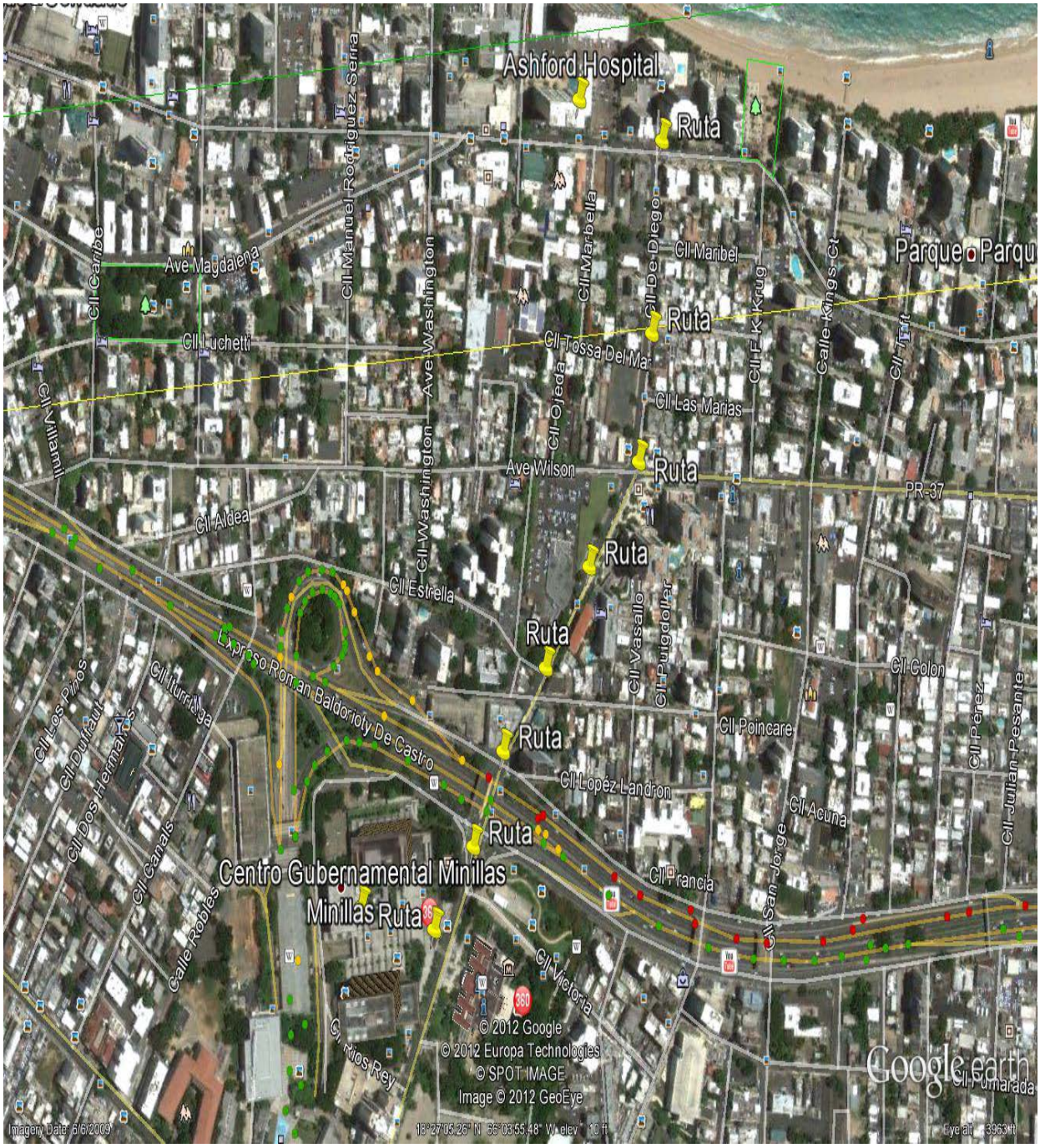
PR Environmental Quality Board – (787) 767-8181

Project Coordinator (To be provided)

Map: Emergency Route to Hospital (Alternative 1) San Juan Medical Plaza (Health Centre)



Map: Emergency Route to Hospital (Alternative 2) Ashford Center



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MATERIAL SAFETY DATA SHEETS **(To be provided as soon select the contractor)**

1.0 INTRODUCTION

This document addresses items specified under Occupational Safety and Health Administration (OSHA) Title 29 of the *Code of Federal Regulations* (CFR), Part 1910.120 (b), "Final Rule." and 29 CFR 1910.1001. This health and safety plan (HASP) will be available to all on-site personnel who may be exposed to hazardous on-site conditions, including environmental contractors and subcontractor personnel, consultants and all site visitors and regulatory agency representatives. The site-specific health and safety provisions in this document have been developed for use during the Minillas Government Building (North Tower) Asbestos Cleanup Project.

The cleanup activities of this building have been occurring in two phases:

• Phase I included the first cleanup work and occurred in two sub-phases referred to as Phase IA and Phase IB. Phase IA consisted of initial dust cleaning, abatement of identified asbestos-containing building materials (ACBMs) located in the **Level 9** (interior of the building) as necessary to complete a previous in process abatement and cleaning project. Phase IB then included the exterior cleanup efforts associated with **Ground level** of the building related to soil, concrete slab and other components located in the perimeter of this area by EPA-Kemron contractor.

• Phase II –includes the necessary interior cleanup work which consists of dust cleaning or removal for disposal of interior building components as necessary to achieve the cleaning of the areas. This systematic procedure will be applied to levels G to 8 and 10 to 17.

This HASP covered the activities done as part of Phase I. Also, this HASP covers the activities to be undertaken as part of the Phase II. This HASP is subject to review and revision based on actual conditions to be encountered in the field during site activities.

The General contractor shall be supported on this project by various subcontractors who shall provide specific services. Subcontractors shall:

- Provide air sampling (Industrial Hygienist)
- Perform cleaning activities to remove dust

In addition, other subcontractors shall work on-site providing specific trades, for example plumbing and electrical work.

2.0 HEALTH AND SAFETY PLAN ENFORCEMENT AND PERSONNEL

This section describes responsibilities of project personnel, summarizes requirements for subcontractors and visitors who wish to enter the site during the cleanup efforts, and discusses HASP enforcement.

2.1 PROJECT PERSONNEL

The following personnel and organizations are associated with planned activities at the site. The organizational structure will be reviewed and updated as necessary during the course of the project.

Project Coordinator:		
Name/Title	**Responsibility**	**Telephone No.**
Project Coordinator (or his authorized representative)	Consultant in charge of implement and auditing cleanup activity process and oversight of the final interior sampling for re-occupancy	To be provided

Building Owner – Public Building Authority:		
Name/Title	**Responsibility**	**Telephone No.**
	Project administrative contact	(787) 722-0101

General Contractor (Aireko) Representatives:		
Name /Title	**Responsibility**	**Telephone No.**
Paulino R. López Fontela	Project Representative	(787) 316-2994
Edgardo Albino Rodríguez	Project Representative	(787) 315-8744
Kenneth Baez	Project manager	(787) 698-3989

Environmental Consultant [Aireko subcontractor(s)] Representatives:		
Name /Title	**Responsibility**	**Telephone No.**
Harry Peña (or his authorized representative)	General contractor environmental compliance	(787) 376-9010
Omar Muñiz (or his authorized representative)	General contractor environmental and safety compliance	(787) 396-3132

Asbestos Abatement Contractor Representatives:		
Name /Title	**Responsibility**	**Telephone No.**
To be provided	Superintendent	To be provided
To be provided	Competent person	To be provided
To be provided	Personal (OSHA) air monitoring and exterior remediation sampling	To be provided
To be provided	Site safety coordinator	To be provided

All above representatives will be responsible for implementation and enforcement of the Provisions of this HASP, including completion of all applicable reports.

2.1.1 Project Manager and Field Supervisors

The General Contractor project manager has ultimate responsibility for implementing the requirements set forth in this HASP. Some of this responsibility may be achieved through delegation to site-dedicated personnel (field supervisors) who report directly to the project manager. The project manager shall regularly confer with site personnel on compliance with safety and health requirements.

Each contractor or subcontractor site safety officer and field supervisor will oversee and direct field activities and has day-to-day responsibility for implementing the HASP. The general contractor manager will report directly to the PRPBA Project coordinator and to the PRPBA-Industrial Hygienist any health and safety-related issues.

2.1.2 Site Safety Coordinator

The asbestos abatement subcontractor site safety coordinator (SSC) will be appointed by the general contractor project manager and will be responsible for field implementation of tasks and procedures contained in this HASP, including personal air monitoring, establishing a decontamination protocol, and ensuring that all personnel working on site have signed a Daily Safety Meeting form and compliance agreement

Each SSC (from general contractors or subcontractors) will have advanced field work experience and be familiar with health and safety requirements specific to the project. The SSC will also maintain the Daily Site Log in compliance with current regulatory requirements.

2.1.3 Health and Safety Representative

Each contractor, subcontractor and consultants are responsible for administration of their company health and safety program. The Industrial Hygienist will act in an advisory capacity to project managers and site personnel for project-specific health and safety issues.

2.2 SUBCONTRACTORS

Contractors and subcontractors will follow and adhere to the same guidelines stated in Section 2.1.4, however they should provide their own health and safety documentation for the protection of their employees. Puerto Rico Public Building assumes no responsibility for the protection of others. Contractors and subcontractors must supply their own PPE, training, medical monitoring, and any other items necessary for compliance with OSHA and other pertinent regulations.

2.3 VISITORS

All site visitors will be required to read the HASP and sign the Compliance Agreement form (see Appendix A). Visitors will be expected to comply with relevant OSHA requirements. Visitors will also be expected to provide their own PPE as required by the HASP. Visitors who have not met OSHA requirements for training, medical surveillance, and PPE are not permitted to enter areas where exposure to asbestos fibers is possible.

2.4 HEALTH AND SAFETY PLAN ENFORCEMENT

This HASP applies to all site activities and all personnel working on the Minillas Government Building (North Tower) Asbestos Cleanup Project. HASP enforcement shall be rigorous. Violators of the HASP will be verbally notified on first violation, and the PRPB Industrial Hygienist will note the violation in a field logbook. On a second violation, the violator will be notified in writing, and the violator's supervisor will be notified. A third violation will result in a written notification and the violator's eviction from the site. The written notification will be sent to employee's supervisor file.

Personnel will be encouraged to report to their employer's site safety coordinator (SSC) any conditions or practices that they consider detrimental to their health or safety or that they believe violate applicable health and safety standards. These reports may be made orally or in writing. Personnel who believe that an imminent danger threatens human health or the environment are obligated to remove themselves from the area or the hazardous condition and warn all other personnel of the source of the danger. The hazardous condition or matter will be brought to the immediate attention of the Contractor/sub-contractors SSC and owner's industrial hygienist for resolution.

At least one copy of this HASP (and appendixes) will be available to all site personnel at all times. The Industrial Hygienist will discuss minor changes (if any) in HASP procedures at the beginning of each workday at the daily safety meeting to be conducted by the abatement contractor SSC. Significant plan revisions must be discussed with the PRPB administrative representative and the general contractor project manager.

3.0 SITE BACKGROUND

The events of May 13, 2012, which caused the unauthorized disturbance of asbestos containing building materials in Level 9 of the Minillas Government Building North Tower, potentially allow dust and debris to enter into other Building areas.

Subsequent to May 13, 2012, the Environmental Protection Agency collect wipe asbestos samples determining that potential cross-contamination may exist inside the building. Because asbestos containing debris was deposited outside the building, the EPA determines CERCLA

applicability to the site. After EPA notifies their findings, the tower was closed as a prevention measure.

Then, a characterization (background) activity was done by the PRPBA. A cleanup activity project is proposed for this building.

3.1 PLANNED ACTIVITIES

Activities to be performed during the Minillas North Tower cleanup include the following:

Indoor visual inspection: A team preliminary constituted by the Project Coordinator who must be an industrial hygienist, the general contractor environmental consultant and asbestos contractor supervisors will visually inspect the surfaces, components and equipment from each building floor to determine if may be cleaned or disposed-off as contaminated material.

Indoor cleaning: In accordance with the Project work plan, cleanup activities will be implemented in each building level.

Indoor dust sampling: Dust samples will be collected using wipe and/or microvac sampling techniques in all building levels.

Indoor air sampling: Air samples will be collected in all building levels.

These tasks are described in detailed in the submitted work plan.

4.0 EVALUATION OF SITE-SPECIFIC HAZARDS

Field activities and physical features of the site may expose field personnel to a variety of hazards. This section provides information on potential hazards related to site activities and the nature of effects from hazardous or regulated materials.

4.1 CHEMICAL HAZARDS

Asbestos and cleaning products are the potentially hazardous substances anticipated to be encountered during site activities. Asbestos exposure limits are:

OSHA PEL: 0.1 fiber/cm3 (8 hour TWA)
OSHA Excursion Limit: 1 fiber/ cm3 (30 minute exposure)
ACGIH TLV: 0.1 fiber/cm3
NIOSH REL: 0.1 fiber/ cm3
IDLH: Not Established

ACGIH American Conference of Governmental Industrial Hygienists, IDLH Immediately dangerous to life or health; cm3 Cubic centimeter; OSHA Occupational Safety and Health Administration; PEL Permissible exposure limit; ppm Part per million; TLV Threshold limit value; TWA Time weighted average

The primary route of exposure is inhalation; however, secondary potential routes of exposure include dermal (skin) contact and ingestion. Asbestos may also contaminate equipment, vehicles, instruments, and personnel. The overall health threat to employees from exposure to asbestos during this project is uncertain because (1) actual concentrations that personnel could be exposed to cannot be predicted until assessments and sampling activities begin, (2) the actual duration of exposure is unknown, and (3) the effects of low-level exposure to a mixture of chemicals or asbestos cannot be predicted.

Specific information on potential chemical hazards at the site will be available by means of Material Safety Data Sheets of the products or materials to be used during the cleanup activities. Because of the nature of asbestos, amended water will be used during cleanup activities while PPE and monitoring equipment can be decontaminated using soap and water.

The following steps will be taken to reduce the potential for inhaling asbestos:

• Personnel will implement procedures to minimize airborne asbestos fibers, such as wetting techniques.

• The level of Respiratory Protection Equipment will be “Negative pressure full or half face Respirators” provided with NIOSH P100 filters but may be upgraded to “Full face Powered Air-Purifying Respirators” when air sampling results warrant, as determined by the Industrial Hygienist and the contractor SSC.

4.2 PHYSICAL AND BIOLOGICAL HAZARDS

Physical and biological hazards associated with site activities present a potential threat to on-site personnel. Dangers are posed by slippery surfaces, unseen obstacles, poor illumination, use of ladders, and low overhead clearance.

Injuries resulting from physical and biological hazards can be avoided by using safe work practices (SWP). To maintain a safe workplace, the abatement contractor safety offices and the industrial hygienist will conduct and document regular safety inspections and will make sure that workers and visitors are informed of any potential physical and biological hazards (if any) related to the site. Physical and biological hazards that have been identified at this site include the following:

- Use of ladders and other equipment to access areas for cleaning or sample collection
- Trips, slips, fall in interiors, exterior and open areas
- Heat stress
- Fall hazard (from ladders and through elevations)
- Potential confined space entry – no permits are anticipated to be necessary for cleaning or sampling. If present, the employees must be in compliance with OSHA Confined spaces standard prior to enter these areas.

5.0 TRAINING REQUIREMENTS

All on-site personnel who may be exposed to hazardous conditions during the cleanup proposed activities, including general contractor, subcontractors, consultants and site visitors who will participate in on-site activities, will be required to meet training requirements outlined in 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response" and 29 CFR 1926.1101. Eight-hour HAZWOPER course will be allowed as compliance.

All personnel and visitors entering the site will be required to review this HASP and sign the Compliance Agreement form, and site workers will be required to sign the Daily Safety Meeting form. Personnel working inside the regulated areas will, at a minimum, be 8-hour HAZWOPER trained, and corresponding refresher training, respiratory protection trained, asbestos awareness trained, and have a copy of these certificates on their person at all times they are on-site performing work.

Additionally, a copy of a current respirator fit-test will be on-site for each employee performing work. If confined space issues arise during the project, OSHA Confined Spaces standard will be required prior to enter these areas. General contractor safety officer, subcontractors safety officer, environmental consultants and industrial hygienist will be trained on how to identify confined spaces, and what defines a permit required confined space.

Before on-site activities begin, safety officer from the general contractor and subcontractors will present a briefing for their personnel who will participate in on-site activities. The following topics will be addressed during the pre-work briefing:

- Names of the safety officers and the designated alternate
- Site history
- Tasks
- Hazardous chemicals that may be encountered on site

• Physical hazards that may be encountered on site
• PPE, including type or types of respiratory protection to be used for work tasks
• Training requirements
• Action levels and situations requiring upgrade or downgrade of level of protection
• Site control measures, including site communications
• Decontamination procedures
• Emergency communication signals and codes
• Personnel exposure and accident emergency procedures (in case of falls, exposure to hazardous substances, and other hazardous situations)
• Emergency telephone numbers
• Emergency routes

Any other health and safety-related issues that may arise before on-site activities begin will also be discussed during the pre-work briefing. Issues that arise during on-site activities will be addressed during safety meetings to be held daily before the workday, shift begins or immediately (if urgent) and will be documented in the Daily Safety. Any changes in procedures or site-specific health and safety-related matters will be addressed during these meetings.

6.0 PERSONAL PROTECTION REQUIREMENTS

The levels of PPE to be used for work tasks during this project will be selected based on known or anticipated physical hazards; types and concentrations of contaminants that may be encountered on site; and contaminant properties, toxicity, exposure routes, and matrices. The following sections describe protective equipment and clothing; reassessment of protection levels; limitations of protective clothing; and respirator selection, use, and maintenance.

6.1 PROTECTIVE EQUIPMENT AND CLOTHING

Personnel will wear protective equipment when (1) site activities involve known or suspected contamination; (2) site activities may generate asbestos particulates; or (3) direct contact with hazardous materials may occur. The anticipated levels of protection selected for use by field personnel during site activities are listed in Section 4.1. Based on the anticipated hazard level, personnel will initially perform field tasks with half face mask respirators but may be upgraded to Full face “Powered air purifying respirators” if necessary.

Clothing required for level D and level C protection are described below.

• Level D (outside regulated areas)

− Work gloves, if applicable
− Boots with steel-toe protection and steel shanks
− Safety glasses or goggles, if applicable
− Hard hat
− Hearing protection (for areas with a noise level that exceeds 85 decibels on theA-weighted scale)

• **Level C**

− Disposable Coveralls (such as Tyvek or Polypropylene coveralls)
− Outer gloves (neoprene, nitrile, or other), if applicable
− Disposable inner gloves (latex or vinyl)
− Boots with steel-toe protection and steel shanks
− Disposable boot covers
− PAPR, Full- or half-face, air-purifying respirator with National Institute for Occupational Safety and Health (NIOSH)-approved cartridges to protect against organic vapors, dust, fumes, and mists. (Cartridges used for gas and vapors must be replaced in accordance with the change-out schedule described in the corresponding employer Respiratory Hazard Assessment.
− P-100 cartridges will be used with approval number TC-84A-2561.
− Safety glasses or goggles (with a half-face respirator only)
− Hard hat (face shield optional)
− Hearing protection (for areas with a noise level that exceeds 85 decibels on theA-weighted scale)

6.2 REASSESSMENT OF PROTECTION LEVELS

PPE levels will be upgraded or downgraded based on a change in site conditions or findings of the investigation. Hazards will be reassessed when a significant change in site conditions occurs. Some indicators of the need for reassessment are as follows:
• Commencement of a new phase of work, such as the start of a significantly different cleanup or sampling activity or work that begins on a different portion of the project site.
• Potential for release of asbestos
• A change in tasks during a work phase
• Extremes temperatures or individual medical considerations that would limit the effectiveness of PPE
• Discovery of contaminants other than were previously identified
• A change in ambient levels of airborne contaminants (see the action levels listed in Table 8-1)
• A change in work scope that affects the degree of contact with contaminated media

6.3 LIMITATIONS OF PROTECTIVE CLOTHING

PPE clothing ensembles designated for use during site activities have been selected to protect against contaminants at known or anticipated on-site concentrations and physical states. However, no protective garment, glove, or boot is entirely chemical-resistant, nor does any protective clothing protect against all types of chemicals. Permeation of a chemical through PPE depends on the contaminant concentration, environmental conditions, the physical condition of the protective garment, and the resistance of the garment to the specific contaminant. Chemical permeation may continue even after the source of contamination has been removed from the garment. The employees will be trained to avoid property areas where chemical hazards are present; therefore, the use of chemical resistant PPE is not anticipated.

All site personnel will use the following procedures to obtain optimum performance from PPE.

• When protective coveralls become contaminated, don a new, clean garment after each rest break or immediately after cleaning or sampling are completed.
• Inspect all clothing, gloves, and boots both before and during use for the following:
  − Imperfect seams
  − Non-uniform coatings
  − Tears
  − Poorly functioning closures
• Inspect reusable garments, boots, and gloves both before and during use for visible signs of chemical permeation, such as the following:
  − Swelling
  − Discoloration
  − Stiffness
  − Brittleness
  − Cracks
  − Punctures
  − Abrasions

Reusable gloves, boots, or coveralls that exhibit any of the characteristics listed above must be discarded. Reusable PPE will be decontaminated in accordance with procedures described in Section 10.0 and will be neatly stored in the support zone away from work zones.

6.4 RESPIRATOR SELECTION, USE, AND MAINTENANCE

Each contractor and subcontractor is responsible of their individual company Respiratory Protection Programs. Their personnel will be informed of the proper use, maintenance, and limitations of respirators during annual health and safety refresher training and the pre-work briefing. Any on-site personnel who will use a tight-fitting respirator must pass a qualitative fit test for the respirator that follows the fit testing protocol provided in Appendix A of the OSHA respirator standard (29 CFR 1910.134). Fit testing must be repeated annually or when a new type of respirator is used. If exposure to asbestos on this project is expected to exceed 10 times the OSHA PEL, a quantitative respirator fit-test must be performed for all employees wearing respirators.

Respirators are selected based on the assessment of the nature and extent of hazardous atmospheres anticipated during field activities. This assessment includes a reasonable estimate of employee exposure to respiratory hazards and identification of each contaminant's anticipated chemical form and physical state.

Air-purifying respirators will be used only when they can protect against the substances encountered on site.

Factors that would preclude use of level C and air-purifying respirators are as follows:

• Oxygen-deficient atmosphere (less than 19.5 percent oxygen)

• Concentrations of substances that may be immediately dangerous to life and health
• Confined or unventilated areas that may contain airborne contaminants not yet characterized
• Unknown contaminant concentrations or concentrations that may exceed the maximum use levels for designated cartridges documented in the selected cartridge manufacturer's instructions
• Unidentified contaminants
• High relative humidity (more than 85 percent, which reduces the sorbent life of the cartridges)
• Respirator cartridges with an undetermined service life

Use, cleaning, and maintenance of respirators must be described in each employer respirator program.

7.0 MEDICAL SURVEILLANCE

The following sections describe medical surveillance program, including health monitoring requirements, site-specific medical monitoring, and medical support and follow-up requirements. Procedures documented in these sections will be followed for all activities during the Minillas Government Building North Tower asbestos cleanup project.

7.1 HEALTH MONITORING REQUIREMENTS

All contractor and subcontractor personnel involved in on-site activities for this project must participate in a health monitoring program as required by 29 CFR 1910.120(f). Under this program, personnel working on this project must receive baseline and annual physical examinations consisting of the following:

• Complete medical and work history
• Physical examination
• Pulmonary function test
• Resting electrocardiogram
• Chest x-ray (required once every 3 years)

Asbestos project personnel and visitors that will enter to regulated areas will meet the medical monitoring requirements and Owner Industrial Hygienist receives a copy of the examining physician's written opinion for each employee after post-examination laboratory tests have been completed.

This opinion includes the following information (in accordance with 29 CFR 1910.120[f][7]):

• The results of the medical examination and tests
• The physician's opinion as to whether the employee has any medical conditions that would place the employee at an increased risk of health impairment from work involving hazardous waste operations or during an emergency response
• The physician's recommended limitations, if any, on the employee's assigned work;

special emphasis is placed on fitness for duty, including the ability to wear any required PPE under conditions expected on site (for example, temperature extremes)

• A statement that the employee has been informed by the physician of the medical examination results and of any medical conditions that require further examination or treatment

All contractors and subcontractors must have health monitoring programs conducted by their own clinics in compliance with 29 CFR 1910.120(f) and 29 CFR 1910.1001. Any visitors or observers at the site will be required to provide records in compliance with 29 CFR 1910.120(f) before they can enter the site.

8.0 ENVIRONMENTAL MONITORING AND SAMPLING

Environmental monitoring or sampling will be conducted to assess personnel exposure levels as well as site or ambient conditions and to establish appropriate levels of PPE. The following sections discuss initial and background air monitoring, personal monitoring, ambient air monitoring, monitoring parameters and devices, use and maintenance of survey equipment. Site-specific air monitoring requirements and action levels are also provided.

8.1 INITIAL AND BACKGROUND AIR MONITORING

Initial air monitoring of a typical work area will be performed at the beginning of the field project to document airborne fiber levels in building areas.

Background wipes and/or micro-vacuum samples will also be collected inside areas at the beginning of the project, and after cleanup completion.

Initial exposure assessments will also be required for personnel who participate in this project. Personal air monitoring will be required during the initial phase of this project to document airborne exposures. The assessments must be used to document typical exposures during specific types of field activities to establish the PPE level required during these activities.

8.2 PERSONAL MONITORING

Asbestos abatement contractor and subcontractors are responsible of their personnel air monitoring

The employees working closest to a source of contamination have the highest likelihood of exposure to airborne contaminant concentrations that may exceed established exposure limits (see section 4.1). Therefore, the workers who are closest to a source of contaminant generation will be selectively monitored during site activities.

Personal monitoring will be conducted in the breathing zone and, if a worker is wearing respiratory protective equipment, outside the face piece. The breathing zone air will be

monitored for employees working at select locations, such as in the presence of friable asbestos. Work that results in potential employee exposure to airborne asbestos above the prescribed permissible exposure limit (PEL) or short term exposure limit (STEL) requires an exposure assessment regulated under the OSHA reference method 29 CFR Part 1910.1001. The determinations of employee exposure will be made from breathing zone air samples representative of the 8-hour TWA and 30-minute STEL for each employee work category. The PEL is 0.1 f/cc for the 8-hour TWA, and the STEL is 1.0 f/cc over a 30-minute period as set forth in 29 CFR Part 1910.1001 (j)(2)(iii).

The sampling pump flow rates will be between 0.5 liters/minute and 2.5 liters/minute when using a 25- millimeter cassette. Once this sample is analyzed, the results shall be used to calculate the average level of exposure during the complete work shift. The time-weighted average (TWA) results will then be used for comparison to the PEL and to evaluate compliance with permissible exposure limits as established by OSHA. They will also be used to dictate which type of respiratory protection is required to ensure that the PEL is not exceeded.

Personal air samples will also be collected and analyzed in the manner described above for comparison tithe PEL and STEL. Sample filters will be analyzed using PCM methodology by laboratory personnel (1)trained in NIOSH 582 microscopic (or equivalent) courses and (2) participating in a quality control program meeting the requirements established in 29 CFR 1926.1101. The NIOSH method used for this analysis will be Method 7400. The PCM analytical method is designed to identify all fibers of specific size and shape characteristics but not to distinguish between asbestos and non-asbestos fibers. PCM sample results are reported in fibers per cubic centimeter of air (f/cc).

8.3 MONITORING PARAMETERS AND DEVICES

The following sections below briefly describe the use and limitations of instruments used to monitor for asbestos. All monitors will be calibrated in accordance with manufacturer recommendations prior to and subsequent to use for sampling purposes (pre-and post-calibration). Pre and post-calibration results will be averaged to determine the average flow-rate being drawn through the pump for a particular sampling period. Calibration data and other pertinent air monitoring data will be recorded in the field logbook.

8.3.1 Asbestos

Air monitoring will be daily conducted during the project to provide information on exposure and identify the need for PPE upgrades or downgrade. In addition, air monitoring will be conducted to make certain that asbestos is not being released to other areas than regulated.

8.3.2 Particulates

Friable asbestos is anticipated to be encountered during cleanup activities. Other particulates, such as mineral wood, fiberglass, and other insulating materials, may be encountered in project areas but are not known.

Particulate air monitoring is the process of measuring the fiber content of a known volume of air collected during a specific period of time. The acceptable procedure for airborne asbestos measurement for personal exposure monitoring is phase-contrast microscopy (PCM) using the OSHA reference method specified in Appendix A of 29 CFR 1926.1101. NIOSH Method 7400 is an equivalent and acceptable method for measuring airborne fiber levels in area samples. The NIOSH method will be used for initial employee exposure monitoring. The standard detection limit is <0.01 fiber/cc. If lower levels are detection is required, the sample volume and collection time period should be increased. Adjustments to sample volume and time should be selected so that a fiber density of between 100 to 1,300 fibers/mm2 is obtained.

In both sampling methods above, any fiber with an aspect ratio (measure of length vs. width) of greater than 3 to 1 is counted as an asbestos fiber. In areas with significant amounts of fibers such as fiberglass, the PCM method may overestimate the number of asbestos fibers in the air, and thus the exposure to employees or area assessments. In this circumstance, a more selective method of asbestos identification will be employed, explained below.

The acceptable procedure for airborne asbestos measurement by transmission electron microscopy (TEM) is the method EPA specified in 40 CFR 763, Appendix A to Subpart E, Interim Transmission Electron Microscopy Analytical Methods. NIOSH method 7402 is the equivalent TEM method (not for AHERA). TEM sampling provides greater analytical sensitivity and can differentiate between asbestos and non-asbestos fibers.

8.4 USE AND MAINTENANCE OF SURVEY EQUIPMENT

All personnel using field survey equipment must have experience or training in its operation, limitations, and maintenance. Maintenance and internal or electronic calibration will be performed in accordance with manufacturer recommendations by personnel who are familiar with the devices before they are used on site. Repairs, maintenance, and internal or electronic calibration of these devices will be recorded inane equipment maintenance logbook. Results of routine calibration will be recorded on daily air sampling data sheets.

8.5 THERMAL STRESS MONITORING

Heat stress is a common and serious threat at hazardous waste sites. Periodic rest and liquid ingestion will be enforced for employees working at regulated areas.

9.0 SITE CONTROL

Site control is an essential component in HASP implementation. The following sections discuss measures and procedures for site control, such as on-site communications, site control zones, site access control, site safety inspections, and SWPs.

9.1 ON-SITE COMMUNICATIONS

Successful communication between field teams and personnel is essential. The following communication systems will be available during site activities:

• Cellular telephones or two-way radios

The hand signals listed below will be used by site personnel in emergency situations or when verbal communication is difficult.

Hands clutching throat Out of air or cannot breathe
Hands on top of head Need assistance
Thumbs up Okay, I am all right, or I understand
Thumbs down No or negative
Arms waving upright Send backup support
Gripping partner's wrist Exit area immediately

9.2 SITE CONTROL ZONES

The following site control zones will be established for each property and work task.

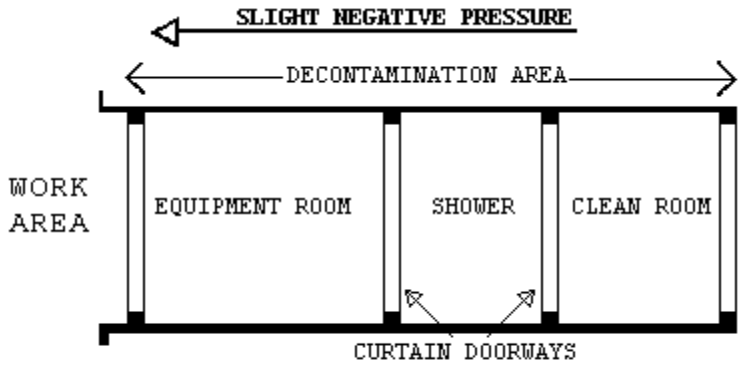
9.2.1 Zone 1: Exclusion Zone

An exclusion zone includes areas where contamination is either known or likely to be present or, because of work activity, has the potential to cause harm to personnel. In this project, these areas will be limited to Minillas Building North Tower and identified ground area.

Other building occupants and visitors will be restricted from entering the exclusion zone while cleanup and sampling procedures be on-going.

9.2.2 Zone 2: Decontamination Zone

The Abatement Contractor will provide a Decontamination Unit consisting of a serial arrangement of connected rooms or spaces known as Changing Room, Air Locks, Shower Room, Air Locks and Equipment Room (see following diagram). An attached Decontamination Unit is required per each work area. These units will be the only means of ingress and egress for the Work Area.



9.2.3 Zone 3: Support Zone

A support zone may consist of any uncontaminated and non-hazardous part of the site, such as areas adjacent to decontamination zones. Cleanup procedures will immediately stop if visible suspect asbestos-contaminated debris is observed outside of the sampling or decontamination areas at any time during the project after the exclusion zone has been established. Debris and residue will be cleaned up using appropriate HEPA vacuuming or wet cleaning procedures before work recommences. Site visitors who do not meet training, medical surveillance and PPE requirements may enter the support zone upon approval by the Industrial Hygienist unless visible suspect asbestos-contaminated debris is observed in the area.

9.3 SITE ACCESS CONTROL

Non-authorized people should be restricted from the immediate areas during cleanup and sampling procedures.

9.4 SITE SAFETY INSPECTIONS

The Site safety inspectors and the industrial hygienist will conduct one site safety inspection for each work spent on-site to maintain safe work areas and compliance with this HASP. Results of the site safety inspections will be recorded on a Field Audit Checklist.

9.5 SAFE WORK PRACTICES

Various SWPs are applicable during this project. The following SWPs apply to the site:
• SWP 6-1, General Safe Work Practices
• SWP 6-8, Safe Electrical Work Practices
• SWP 6-9, Fall Protection Practices
• SWP 6-10, Portable Ladder Safety
• SWP 6-15, Heat Stress
• SWP 6-16, Cold Stress
• SWP 6-27, Respirator Cleaning Procedures
• SWP 6-28, Safe Work Practices for Use of Respirators
• SWP 6-29, Respirator Qualitative Fit Testing Procedures

10.0 DECONTAMINATION

Decontamination is the process of removing or neutralizing contaminants on personnel or equipment. When properly conducted, decontamination procedures protect workers from contaminants that may have accumulated on PPE, tools, rental vehicles and other equipment. Proper decontamination also prevents transport of potentially harmful materials to uncontaminated areas.

All employees will be required to adhere to personal decontamination procedures when leaving the Work Area and to put on a new disposable coverall, new head cover and a clean respirator each time anyone enters the Work Area.

10.1 EQUIPMENT DECONTAMINATION

Decontamination of all tools, sampling, PPE, and field equipment used during site activities will be required. Decontamination of equipment will be conducted inside regulated areas.

Decontamination procedures will consist of a water rinse or damp rag cleaning of equipment after each use.

10.1.1 PPE and Monitoring Equipment

Used, disposable PPE will be collected in sealable containers and will be disposed of in accordance with procedures described in the project specific work plan. All non-disposable PPE

such as hard hats, respirators, and any exposed clothing will be washed at the end of each workday, or as necessary depending on working conditions, to remove all potential for asbestos contamination. Monitoring equipment used during sampling will be cleaned with damp towels at the end of each workday, or as necessary to remove any contamination.

10.1.2 Sampling Equipment

Sampling equipment, such as stainless steel mixing bowls and dust sampling templates will be decontaminated before and after each use as described below.

• Decontamination procedures for sampling equipment will depend on the sampling location. Equipment will, in most sampling situations, be decontaminated by wiping down with damp cloths or rags. Soap and water may be necessary when items are excessively dirty but are not mandatory.

• Sampling equipment will be wiped down with disposable paper towels or be allowed to air-dry before the next use.

11.0 EMERGENCY RESPONSE PLANNING

This section describes emergency response planning procedures to be implemented for the site. This section is consistent with PR local, state, and federal disaster and emergency management plans. The following sections discuss pre-emergency planning, personnel roles and lines of authority, emergency recognition and prevention, evacuation routes and procedures, emergency contacts and notifications, hospital route directions, emergency medical treatment procedures, protective equipment failure, fire or explosion, weather-related emergencies, spills or leaks, emergency equipment and facilities, and reporting.

11.1 PRE-EMERGENCY PLANNING

All on-site employees will be trained in and reminded of the provisions of Section 11.0, site communication systems, and site evacuation routes during the pre-work briefing and daily safety meetings. The site safety officers will review the emergency response provisions on a regular basis and will be revised, if necessary, to make certain that they are adequate and consistent with prevailing site conditions.

11.2 PERSONNEL ROLES AND LINES OF AUTHORITY

The General Contractor Site Safety Officer (GCSSO) has primary responsibility for responding to and correcting emergencies and forsaking appropriate measures to maintain the safety of site personnel and the public. Possible actions may include evacuation of personnel from the site area. The SSC is also responsible for ensuring that corrective measures have been implemented, appropriate authorities have been notified, and follow-up reports have been completed.

Individual subcontractors are required to cooperate with the GCSSO, within the parameters of their scopes of work.

Personnel are required to report all injuries, illnesses, spills, fires, and property damage to the GCSSO and/or Industrial Hygiene immediately. The GCSSO and/or Industrial Hygienist must be notified of any on-site emergencies and is responsible for following the appropriate emergency procedures described in this section.

11.3 EMERGENCY RECOGNITION AND PREVENTION

Section 4 lists potential on-site chemical hazards, and provides information on the hazards associated with the various tasks planned for the site. On-site personnel will be made familiar with this information and with techniques of hazard recognition through pre-work training and site-specific briefings.

11.4 EVACUATION ROUTES AND PROCEDURES

In the event of an emergency that necessitates evacuation of a work task area or the site, the general contractor project manager will contact all nearby personnel using the on-site communication systems discussed in Section 9.1 to advise the personnel of the emergency. The personnel will proceed along site roads to a safe distance upwind from the source of the hazard. The personnel will remain in that area until the GCSSO and/or Industrial Hygienist or unauthorized individual provides further instructions.

11.5 EMERGENCY CONTACTS AND NOTIFICATIONS

The emergency information before Section 1.0 of this HASP provides names and telephone numbers of emergency contact personnel. This page must be posted on site or must be readily available at all times. In the event of a medical emergency, personnel will notify the appropriate emergency organization and will take direction from the GCSSO and/or Industrial Hygienist. The project team will follow procedures discussed inspection 11.9 or 11.11.

11.6 HOSPITAL ROUTE DIRECTIONS

Ambulance system will be used for patient transportation in this project.

11.7 EMERGENCY MEDICAL TREATMENT PROCEDURES

A person who becomes ill or injured during work may require decontamination. If the illness or injury is minor, any decontamination necessary will be completed and first aid should be administered before the patient is transported. If the patient’s condition is serious, partial decontamination will be completed (such as complete disrobing of the person and redressing the person in clean coveralls or wrapping in blanket). First aid should be administered until an ambulance or paramedics arrive. All injuries and illnesses must be reported immediately to the GCSSO, abatement contractor site safety offices and/or Industrial Hygienist.

11.8 PROTECTIVE EQUIPMENT FAILURE

If any worker in the exclusion zone experiences a failure of protective equipment (either engineering controls or PPE) that affects his or her personal protection, the worker and all coworkers will immediately leave the exclusion zone. Re-entry to the exclusion zone will not be permitted until (1) the protective equipment has been repaired or replaced, (2) the cause of the equipment failure has been determined, and (3) the equipment failure is no longer considered to be a threat.

11.9 FIRE OR EXPLOSION

In the event of a fire, explosion or any other emergency on the Building, Fire Department, Police Department and State and Municipal Emergency responders will be immediately notified and summoned according to the existing General Minillas Emergency Plan. A pre-commencement of cleanup activities safety meeting will be held with the Minillas Emergency response personnel including representatives of (a) the Fire Department, (b) the Police Department (c) the State Agency for Emergency Management (d) Municipal Emergency Management and (d) the PREQB to review the HASP and discuss the procedures for response actions in case of emergency. The foregoing representatives will receive a copy of this Work Plan, including the HASP. During the meeting, distinct attention will be offered to the combustible materials/substance (fire hazards) in the cleanup project (both existing and upcoming by the contractors); Material Safety Data Sheets (MSDS) of all relevant chemical substances must be in place and made part of the HASP prior to the commencement of cleanup activities and for the foregoing safety meeting. A revised version of the HASP, including the MSDS will be provided to EPA and the foregoing emergency respondents. Appropriate provisions of Section 11.0 will be implemented by site personnel.

11.10 WEATHER-RELATED EMERGENCIES

Work will not be conducted during severe weather conditions, including high-speed winds or lightning.
In the event of severe weather, field personnel will stop work, secure and lower all equipment, and leave the site.

11.11 EMERGENCY EQUIPMENT AND FACILITIES

The following emergency equipment will be available on site:
• First aid kit
• Fire extinguisher
• Site telephones, depending on location
• Mobile telephone
• Confined-space entry equipment, as necessary
• Fall protection equipment, as necessary

11.12 REPORTING

All emergencies require follow-up and reporting. An Incident Report must be completed and submitted to the GCSSO and/or Industrial Hygienist within 24hours of an emergency. The GCSSO and/or Industrial Hygienist will review the report and then forward it to the corresponding employers. The report must include proposed actions to prevent similar incidents from occurring.

The employer must be fully informed of the corrective action process so that he may implement applicable elements of the process at other sites.

Appendix (available in site)

A. REPORTING FORMS
B. NIOSH ANALYTICAL METHOD 7400
C. NIOSH ANALYTICAL METHOD 7402